

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended): A miniature analytical device with thermal regulation comprising:
~~a localized heat source; and~~
~~a first~~ an array of temperature-controlled zones comprising reactants[,];
and
an array of heat sources, wherein said ~~localized~~ the array of heat source sources is positioned to correspond to the array of temperature-controlled zones and regulates temperature in ~~[[said]]~~ the zones.
2. (Currently amended): A miniature analytical device with thermal regulation according to claim 1, wherein:
~~said localized~~ the array of heat source ~~comprising a second array of~~ sources comprises electromagnetic radiation emitters, ~~wherein a second array of~~ electromagnetic radiation emitters is positioned to correspond with said first array of temperature-controlled zones.
3. (Currently amended): A miniature analytical device with thermal regulation according to claim 2, wherein:
~~said second array of~~ the electromagnetic radiation emitters ~~comprising~~ comprise vertical cavity surface emitting laser light sources.

4. (Currently amended): A miniature analytical device with thermal regulation according to claim 3, wherein:
~~said second array of electromagnetic radiation emitters transmits~~ the vertical cavity surface emitting laser light sources transmit infrared light through the reactants, thereby facilitating measuring ~~to measure~~ the concentration of a material within ~~[[said]]~~ the reactants.
5. (Currently amended): A miniature analytical device with thermal regulation according to claim 3, wherein:
~~said second array of electromagnetic radiation emitters transmits~~ the vertical cavity surface emitting laser light sources transmit infrared light through the reactants, thereby facilitating measuring ~~to measure~~ the temperature of the reactants.
6. (Currently amended): A miniature analytical device with thermal regulation according to claim ~~[[1]]~~ 2, wherein:
~~said second array of~~ the electromagnetic radiation emitters ~~comprises with~~ comprise at least one light source chosen from a vertical cavity surface emitting laser light source, a light emitting diode, an infrared lamp, an infrared laser, and an infrared diode laser, ~~said first array positioned to correspond with said second array.~~
7. (Currently amended): A miniature analytical device with thermal regulation according to claim 6, wherein:
at least one of ~~said light source~~ the electromagnetic radiation emitters in

~~said second~~ the array of heat sources generates infrared light of a different wavelength.

8. (Currently amended): A miniature analytical device with thermal regulation according to claim 6, wherein:
[[said]] the at least one light sources generate source generates infrared light with a wavelength of at least 0.775 micrometers.
9. (Currently amended): A miniature analytical device with thermal regulation according to claim 6, wherein:
[[said]] the at least one light sources generate source generates infrared light with a wavelength of at most 7000 micrometers.
10. (Currently amended): A miniature analytical device with thermal regulation according to claim 1, wherein:
~~said localized~~ the array of heat source sources comprises ~~a second array of~~ internal heat generators, ~~wherein said second array of internal heat~~ generators ~~is positioned within said first array of temperature controlled~~ zones.
11. (Currently amended): A miniature analytical device with thermal regulation according to claim 10, wherein:
[[said]] the internal heat generators comprise [[of]] at least one electrical heater chosen from resistive heaters, inductive heaters, and Peltier heaters.
12. (Currently amended): A miniature analytical device with thermal regulation according to claim 11, further comprising:

a third an array of electrical leads positioned to correspond with said ~~second~~
~~array of~~ to the internal heat generators.

13. (Currently amended): A miniature analytical device with thermal regulation according to claim 1, wherein:

said ~~localized~~ the array of heat source sources comprises a ~~second array of~~
external heaters, wherein said ~~second array of external heaters is positioned~~
~~to correspond with said first array of temperature controlled zones.~~
14. (Currently amended): A miniature analytical device with thermal regulation according to claim 1, further comprising:

a power supply coupled to said ~~localized~~ the array of heat source sources
providing sufficient drive current to increase the temperature of said
~~temperature controlled~~ the zones.
15. (Currently amended): A miniature analytical device with thermal regulation according to claim 14, further comprising:

a controller coupled to ~~[[said]]~~ the power supply for controlling the drive current to said ~~localized~~ the array of heat sources.
16. (Currently amended): A miniature analytical device with thermal regulation according to claim 15, wherein:

~~[[said]]~~ the controller modulates the power supply based on a temperature measured from the ~~temperature controlled~~ zones.
17. (Currently amended): A miniature analytical device with thermal regulation according to claim 1, further comprising:

~~a third~~ an array of temperature monitors, ~~said third~~ wherein the array of
temperature monitors is positioned to correspond to said first the array of
temperature controlled zones.

18. (Currently amended): A miniature analytical device with thermal regulation according to claim 1, wherein:
[[said]] the reactants comprise assay elements for body fluid analysis.
19. (Currently amended): A method of thermal regulation for a miniature analytical device comprising:
heating ~~a first~~ an array of temperature-controlled zones containing reactants with a localized heat source;
measuring the temperature of [[said]] the temperature controlled zones;
modulating [[said]] the localized heat source; [[and]]
regulating the temperature of [[said]] the temperature controlled zones; and
modifying at least one absorptive property of at least one of the reactants.
20. (Canceled)